LEARNING AND INSTRUCTION

The Journal of the European Association for Research on Learning and Instruction

VOLUME 5

Editor

ROGER SÄLJÖ



LEARNING AND INSTRUCTION

The Journal of the European Association for Research on Learning and Instruction

Editor:

Roger Säljö, Department of Communication Studies, University of Linköping, S-581 83 Linköping, Sweden

Assistant Editor:

Kerstin Bergqvist, Department of Communication Studies, University of Linköping, S-581 83 Linköping, Sweden

Associate Editors:

Monique Boekaerts, Centre for the Study of Education and Instruction, Leiden University, Wassenaarseweg 52, Postbus 9555, NL-2300, RB Leiden, The Netherlands

Andreas Demetriou, Department of Psychology, Aristotelian University of Thessaloniki, GR-Thessaloniki 54006, Greece

Michel Fayol, Psychological Laboratory, University of Bourgogne, 6 Bd Gabriel, F-21000 Dijon, France Neil Mercer, School of Education, The Open University, Walton Hall, Milton Keynes MK7 6AA, U.K. Hans Spada, Psychological Institute, University of Freiburg, Niemensstrasse 10, D-7800 Freiburg, Germany

Advisory Member:

Stella Vosniadou, Department of Methodology, History and Theory of Science, National and Capodistrian University of Athens, 44 Ippokratus Street, Athens 10680, Greece

Editorial Assistant:

Inger Bure, Department of Communication Studies, University of Linköping, S-581 83 Linköping, Sweden

Former Editor:

Erik De Corte, Center for Instructional Psychology and Technology, University of Leuven, Vesaliusstraat 2, B-3000 Leuven, Belgium

International Editorial Advisory Board:

Agnès Blaye, Provence, France
Pietro Boscolo, Padova, Italy
Mario Carretero, Madrid, Spain
Beno Csapo, Szeged, Hungary
Hazel Francis, London, UK
Robert Glaser, Pittsburgh, USA
Giyoo Hatano, Sainama, Japan
Andreas Helmke, Landau/PFalz,
Germany

Joost Lowyck, Leuven, The Netherlands Edward Necka, Cracow, Poland Frederico Pereira, Lisbon, Portugal Andrej Podolsky, Moscow, Russia Clotilde Pontecorvo, Rome, Italy Jan Prucha, Prague, Czech Republic

Kurt Reusser, Zürich, Switzerland Brigitte Rollett, Vienna, Austria Gavriel Salomon, Haifa, Israel Richard Snow, Stanford, USA Andrée Tiberghien, Lyon, France Johan O. Undheim, *Trondheim,* Norway
Bernadette Van Hout-Wolters,

Amsterdam, The Netherlands
Marja Vauras, Turku, Finland
Simone Volet, Murdoch, Australia
Gordon Wells, Toronto, Canada
Richard White, Clayton, Australia

Publishing Office: Elsevier Science Ltd, Bampfylde Street, Exeter EX1 2AH, England [Tel. Exeter (01392) 51558; Fax (01392) 425370]. Production Editor: Nick Pym.

Subscription and Advertising Offices: North America: Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A. Rest of the World: Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, England [Tel. Oxford (01865) 843000; Fax (01865) 843010].

Frequency: Published quarterly in March, June, September and December.

Copyright © 1996 Elsevier Science Ltd

Subscription Rates: Annual institutional subscription rate (1996): North, Central and South America, U.S.\$210.00. Rest of the World, £132.00. Sterling prices exclude VAT. Non-VAT registered customers in the European Community will be charged the appropriate VAT in addition to the price listed. Prices include postage and insurance and are subject to change without notice.

Back Issues: Back issues of all previously published volumes are available direct from Elsevier Science Offices (Oxford and New York). Complete volumes and single issues can be purchased for 1991–1995. Earlier issues are available in high quality photo-duplicated copies as complete volumes only.

CONTENTS

Number 1, 1995

List of Reviewers for 1993/94	iii
List of Articles in Volume 4 (1994)	v
The Precursors of Writing: Graphic Representation in Preschool Children M. Martlew and A. Sorsby	1
Learning for Later Teaching: An Exploration of Mediational Links between Teaching Expectancy and Learning Results A. Renkl	21
Gender Differences in Structure, Means and Variances of Hierarchically Ordered Ability Dimensions M. Rosén	37
The Academic Self-Schema: An Experimental Illustration D. Martinot and JM. Monteil	63
Children's Understanding of Graphic Representations of Quantitative Data R. Gerber, G. Boulton-Lewis and C. Bruce	77
Number 2, 1995	
Individual and Cooperative Computer-writing and Revising: Who Gets the Best Results? V. L. Zammuner	101
Accounts and Explanations in Group Decisions Concerning Students with Learning and Social Disabilities K. Granström	125
Comprehension Monitoring and the Level of Comprehension in High- and Low-achieving Primary School Children's Reading R. Kinnunen and M. Vauras	143
The Impact of Learning Journals on Metacognitive and Cognitive Processes and Learning Performance A. R. McCrindle and C. A. Christensen	167
Number 3, 1995	
The Effects of Early Phonological Awareness Training on Reading Success L. Kozminsky and E. Kozminsky	187
Intervention in Comprehension and Memory Strategies: Knowledge and Use of Text Structure J. A. León and M. Carretero	203

F. ACHTENHAGEN

Students' Self-Concept in Relation to Perceived Differential Teacher Treatment 221 A. W. BLÖTE The Cognitive Apprenticeship Model in a Technologically Rich Learning Environment: 237 Interpreting the Learning Interaction S. JÄRVELÄ Number 4, 1995 Fusing Experience and Theory: The Structure of Professional Knowledge 261 R. Bromme and H. TILLEMA Knowledge Development and Restructuring in the Domain of Medicine: The Role of Theory and 269 **Practice** H. P. A. Boshuizen et al. Changing the Professional Knowledge and Beliefs of Teachers: A Training Study 291 H. H. TILLEMA Polycontextuality and Boundary Crossing in Expert Cognition: Learning and Problem Solving in 319 Complex Work Activities Y. ENGESTRÖM et al. 337 Implicit Psychological Concepts in Architects' Knowledge-How Large is a Large Room? R. RAMBOW and R. BROMME Strategies, Competence and Style-Problem Solving in Engineering Design 357 R. VON DER WETH and E. FRANKENBERGER How Does Experience Affect Theoretical Knowledge for Teaching? 385 C. Desforges **Commentaries** Integrating Professional Knowledge: The Theory of Practice and the Practice of Theory 401 G. LEINHARDT et al. Fusing Experience and Theory—Sociopolitical and Cognitive Issues 409